Proposed Product Category for Biobased Categorization

The following biobased product information has been collected to support product category desgination by USDA for the BioPreferred Program. This summary reflects data available as of June 12, 2009.

Title: Wood and Concrete Stains

Description: Products that are designed to be applied as a finish for concrete and wood surfaces and that contain dyes or pigments to change the color without concealing the grain pattern or surface texture.

Companies Supplying Product Category: 15 companies supplying Wood and Concrete Stains have been identified through internet searches, manufacturer's directories, trade associations, and company submissions.

Industry Associations Investigated: The following industry associations have been investigated for member companies supplying Wood and Concrete Stains:

- United Soybean Board Association
- National Corn Growers Association
- National Wood Flooring Association
- American Concrete Pavement Association
- American Wood Protection Association

Commercially Available Products Identified: Of the companies identified, 48 Wood and Concrete Stains are commercially available on the market.

Product Information Collected: Specific product information including company contact, intended use, biobased content, and performance characteristics have been collected on 3 Wood and Concrete Stains.

Industry Performance Standards: Product information submitted by biobased manufacturers and suppliers indicate that have typically been tested to the following industry standards:

- GREENGUARD Indoor Air Quality Certified® standard for indoor air quality

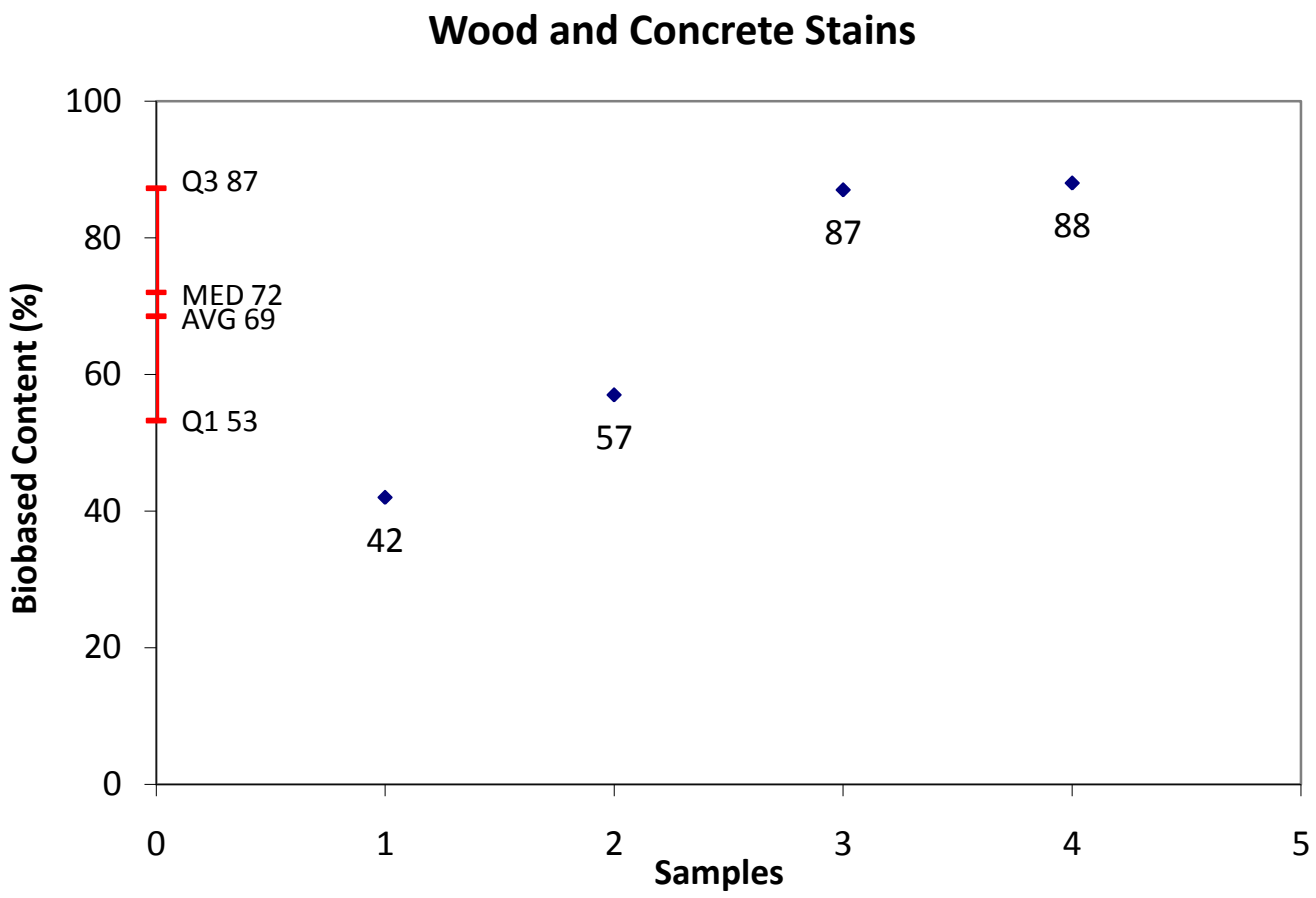
Samples Tested for Biobased Content: 4 samples of Wood and Concrete Stains have been submitted to independent laboratories for biobased content testing as specified by ASTM standard D6866.

Biobased Content Data: Results from biobased content testing of Wood and Concrete Stains indicate a range of content percentages from 42% minimum to 88% maximum biobased content as defined by ASTM D6866. A detailed distribution of biobased content levels is included as Appendix A.

Products Submitted for BEES Analysis: Life-cycle cost and environmental effect data for 1 Wood and Concrete Stains have been submitted to NIST for BEES analysis.

BEES Analysis: The life-cycle cost of the submitted Wood and Concrete Stains is $7.49 per usage unit. The environmental score is 0.0067. A detailed summary of the BEES results is included as Appendix B.

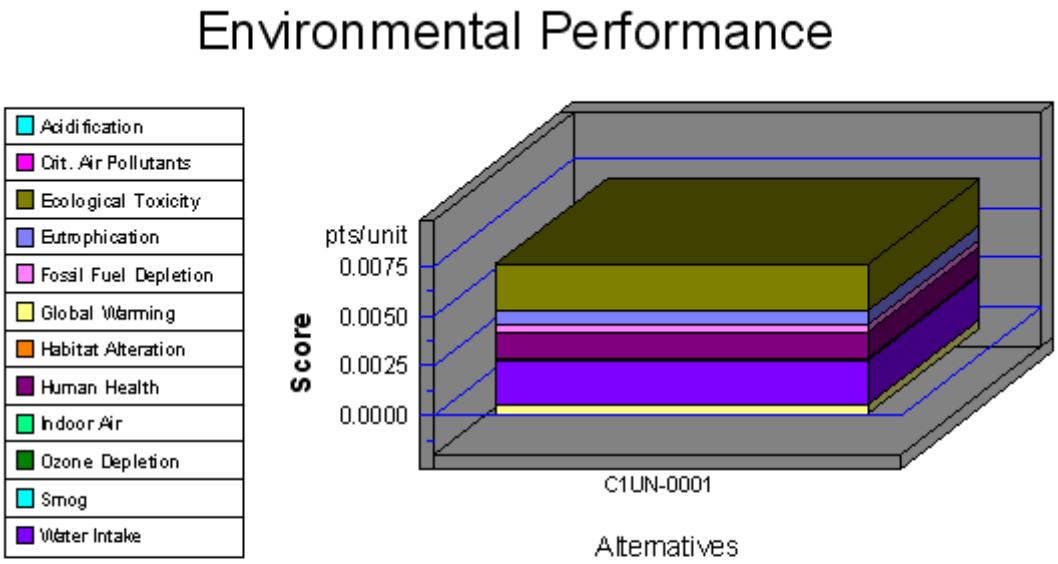
Appendix A - Biobased Content Data



	Company	Product	C14	BEES
1	W7UT	W7UT-0001	42	
2	KFA3	KFA3-0001	57	
3	C1UN	C1UN-0002	87	Yes
4	Q14G	Q14G-0016	88	

Appendix B - BEES Analysis Results

Functional Unit: 192 sq. ft. of stained wood

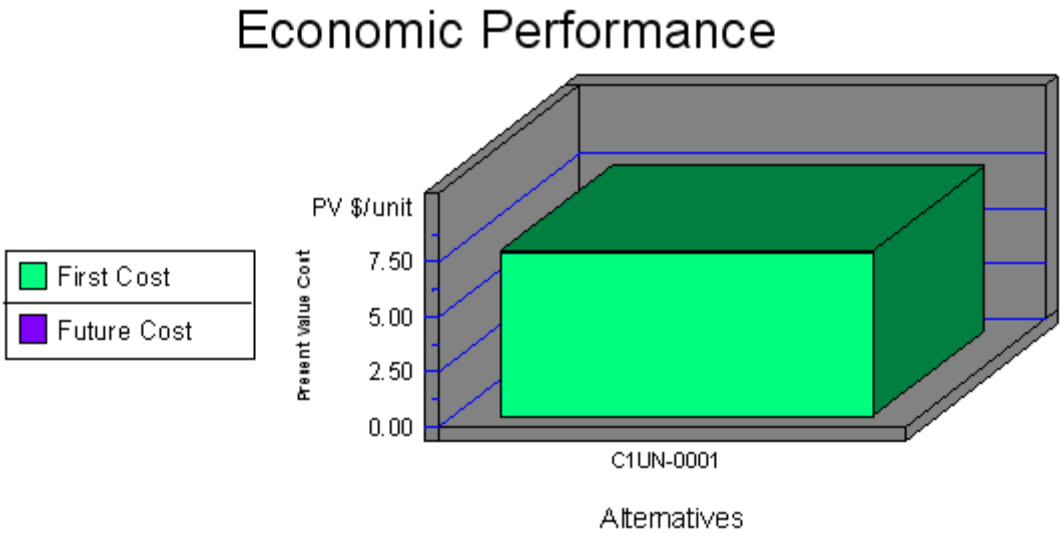


Note: Lower values are better

Category	C1UN-0001
Acidification--3%	0.0000
Crit. Air Pollutants--9%	0.0000
Ecolog. Toxicity--7%	0.0024
Eutrophication--6%	0.0007
Fossil Fuel Depl.--10%	0.0003
Global Warming--29%	-0.0004
Habitat Alteration--6%	0.0000
Human Health--13%	0.0014
Indoor Air--3%	0.0000
Ozone Depletion--2%	0.0000
Smog--4%	0.0001
Water Intake--8%	0.0022
Sum	0.0067

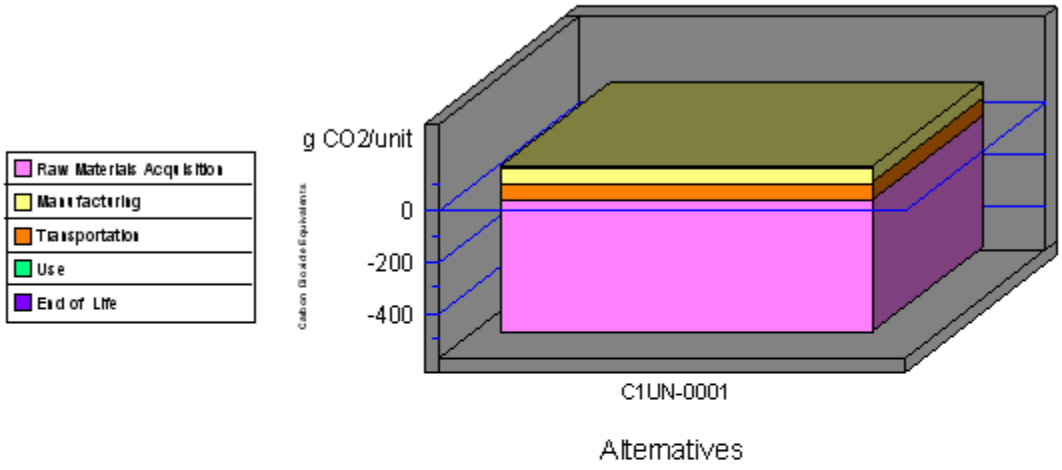
Wood and Concrete Stain		
Impacts	Units	C1UN-0001
Acidification	millimoles H^+ equivalents	2.37E+02
Criteria Air Polutants	microDALYs	6.25E-02
Ecotoxicity	g 2,4-D equivalents	2.82E+01
Eutrophication	g N equivalents	2.29E+00
Fossil Fuel Depletion	MJ surplus energy	1.07E+00
Global Warming	g CO_2 equivalents	-3.83E+02
Habitat Alteration	T&E count	0.00E+00
Human Health--Cancer	g C_6H_6 equivalents	9.11E-01
Human Health--NonCancer	g C_7H_8 equivalents	1.46E+03
Indoor Air Quality	g TVOCs	0.00E+00
Ozone Depletion	g CFC-11 equivalents	2.61E-07
Smog	g NO_x equivalents	3.40E+00
Water Intake	liters of water	1.45E+02
Functional Unit	----------	192 sq. ft. of stained wood

1 Following are more complete descriptions of units: Acidification: millimoles of hydrogen ion equivalents; Criteria Air Pollutants: micro Disability-Adjusted Life Years; Ecological Toxicity: grams of 2,4-dichlorophenoxy-acetic acid equivalents; Eutrophication: grams of nitrogen equivalents; Fossil Fuel Depletion: megajoules of surplus energy; Global Warming: grams of carbon dioxide equivalents; Habitat Alteration: threatened and endangered species count;Human Health-Cancer: grams of benzene equivalents; Human Health-NonCancer: grams of toluene equivalents; Indoor Air Quality: grams of Total Volatile Organic Compounds; Ozone Depletion: grams of chloroflourocarbon-11 equivalents; Smog: grams of nitrogen oxide equivalents; and Water Intake: liters of water.



Category	C1UN-0001
First Cost	7.49
Future Cost– 3.0%	0.00
Sum	7.49

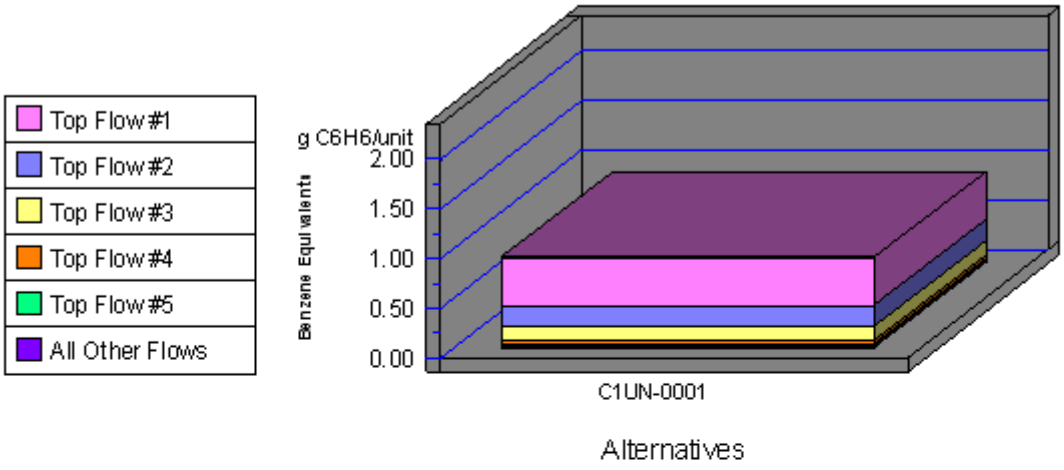
Global Warming by Life-Cycle Stage



Note: Lower values are better

Category	C1UN-0001
1. Raw Materials	-512
2. Manufacturing	59
3. Transportation	69
4. Use	0
5. End of Life	0
Sum	-383

Human Health Cancer by Sorted Flows*

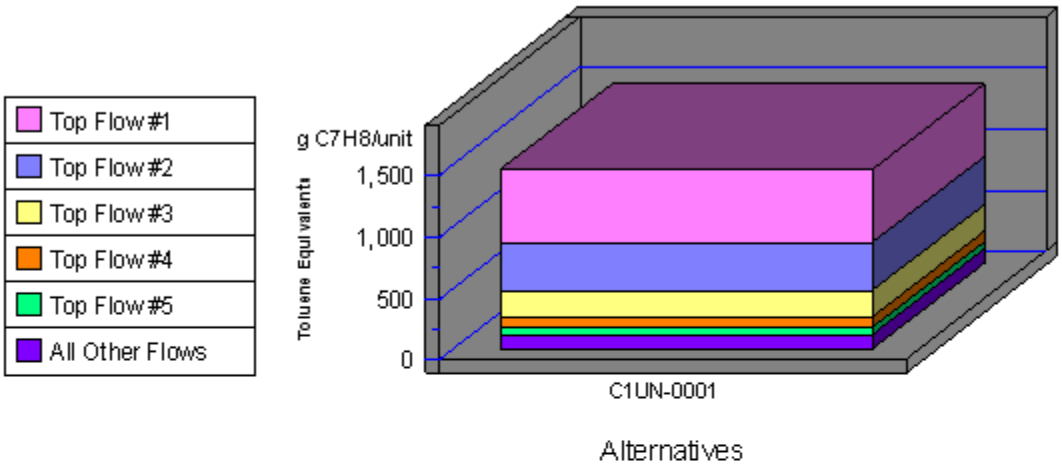


Note: Lower values are better

Category	C1UN-0001
Cancer--(a) Dioxins (unspecifie	0.47
Cancer--(w) Phenol (C6H5OH)	0.21
Cancer--(w) Arsenic (As3+,	0.15
Cancer--(a) Arsenic (As)	0.03
Cancer--(a) Simazine	0.03
All Others	0.02
Sum	0.91

*Sorted by five topmost flows for worst-scoring product

Human Health Noncancer by Sorted Flows*



Note: Lower values are better

Category	C1UN-0001
Noncancer--(a) Dioxins (unspeci	592.01
Noncancer--(a) Mercury (Hg)	383.83
Noncancer--(w) Mercury (Hg+,	218.40
Noncancer--(a) Aluminum (Al)	88.05
Noncancer--(a) Lead (Pb)	60.05
All Others	120.76
Sum	1,463.09

*Sorted by five topmost flows for worst-scoring product